

Verify the following using the MacLaurin Series:

$$1.) \frac{d}{dx} e^x = e^x$$

$$2.) \frac{d}{dx} \sin(x) = \cos(x)$$

$$3.) \frac{d}{dx} \cos(x) = -\sin(x)$$

$$\text{Challenge: } \frac{d}{dx} \ln(1+x) = \frac{1}{1+x} = \frac{1}{1-(-x)}$$